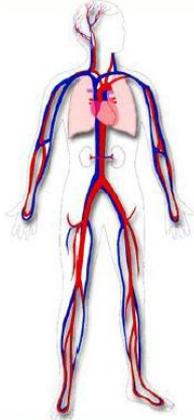


Vascular Disorders

Janette Linke MSN RN
NURSING 233
FALL 2015
November 05, 2015

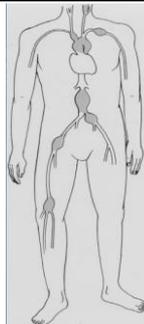


Objectives

- Analyze the nursing process in the promotion and maintenance of system stability for individuals with vascular problems (aneurysms).
- Analyze peripheral vascular disease (PVD), the types, risk factors, signs and symptoms, complication, treatment and related nursing care.

Aneurysms

- Aortic Aneurysms
 - Most common cause is atherosclerosis
 - Lined by thrombi
 - ↑ 3cm risk for rupture
 - Growth unpredictable

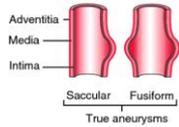


Aneurysms Risk factors

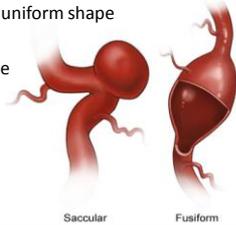
- Male
- 65 years old are more
- Tobacco use
- ↑ BP
- Artery disease
- ↑ cholesterol
- Genetics/Congenital

Types

- True aneurysm
 - At least one vessel layer intact

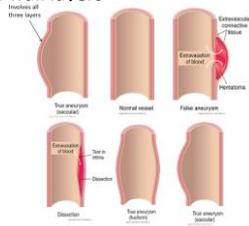


- Fusiform – widening with uniform shape
- Saccular – pouch like bulge



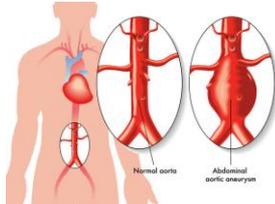
Aneurysms Types (cont.)

- False aneurysm/Pseudoaneurysm
 - Disruption of all arterial wall layers
 - With bleeding



Abdominal (AAA)

- Most common (75%)
- Most develop below renal arteries
- May be in more than one location



Signs and Symptoms of AAA

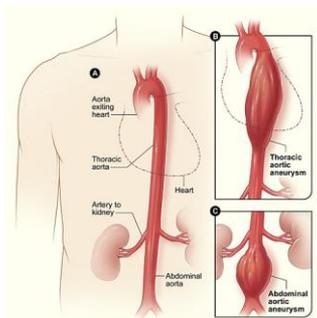
- Most asymptomatic
- May have a pulsatile mass
 - Do not palpate
- Mimic back and abdominal problems
 - Lower back pain
 - epigastric pain
 - Change in bowel elimination
 - Possible “blue toe syndrome”

<http://www.youtube.com/watch?v=PrITdsJ7IWg>



Thoracic Aortic Aneurysms

- Occurrence (25%)
- Ascending aorta/
Aortic arch



Signs and Symptoms of Thoracic Aortic Aneurysms

- Most Asymptomatic
- Mimic angina
 - Deep chest pain
- May develop
 - Hoarseness
 - Dysphagia
 - JVD
 - Edema in face and arms

Complications of aneurysm

- Rupture
- 
- Massive hemorrhage → Hypovolemic Shock
 - Death

Diagnostics

- Most Aneurysm are found by accident
 - Chest and abdominal X-rays
 - Ruling out MI
 - Abnormal labs
 - Fibrinogen
 - D-dimer

Diagnostics (cont.)

- Once found aneurysms are monitored by
 - CT scan
 - MRI
 - Angiography

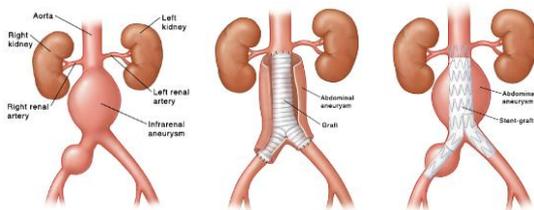


Interventions

- Goal – Prevent rupture
 - Helpful drugs
 - Statins
 - B blockers
 - Antibiotics
- Surgical
 - When ≥ 5.5 cm in men and ≥ 5.0 cm in women

Open surgery

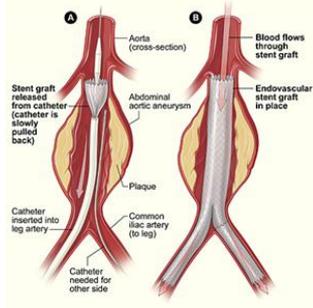
1. Incises the diseased aortic segment
2. Remove plaque/thrombus
3. Suture in synthetic graft
4. Suture aortic walls around graft



Endovascular Graft Procedure

– Complications

- Rupture, stent migration, growth of aneurysm around stent graft.
- Need CT monitoring for life



http://www.youtube.com/watch?v=2qRP1_Kr5wQ

RN Interventions

- Baseline assessment
- Health promotion
 - Reduce cardio disease risk factors

Postoperative

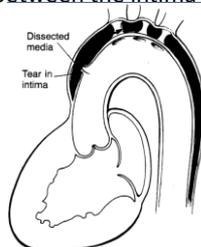
- Graft patency
- Infection
- Gastrointestinal status
- Neuro status
- Peripheral perfusion
- Renal perfusion

Home care

- Gradually increase activities
- Avoid heavy lifting for 6 weeks
- Sexual dysfunction common in males

Aortic Dissection

- Not a true aneurysm
- Creation of a false lumen between the intima and media vessel walls
 - Acute onset
 - Commonly ascending aorta
 - Can be chronic



Aortic Dissection (cont.)

- Cause
 - Degeneration of elastic fibers → intimal tears
 - In areas of highest rise in BP
 - Aortic arch
 - Subclavian artery
 - Dissection can progress down the aorta to lower extremities

Aortic Dissection (cont.)

- Risk factors
 - Male
 - Age
 - Congenital heart disease
 - Connective tissue disorders
 - Cocaine use
 - Cardiac surgery
 - ↑ BP
 - Atherosclerosis
 - Pregnancy

Signs and symptoms of Dissection

- Sudden excruciating chest/back pain
- Noted as “sharp”, “worst ever”, “tearing”, “ripping”
- Older adults more likely develop ↓ BP, and vague symptoms

Symptoms by location of Dissection

- Aortic arch
 - Neuro deficits
 - Absent carotid/temporal pulses
 - Dizziness/syncope
- Subclavian
 - Differences in between left and right side upper extremity pulses
- Below aorta
 - Decreased tissue perfusion to the abdominal organs and lower extremities

Complications

Can develop

- angina
- MI
- Cardiac murmur
- Left side CHF

- Cardiac tamponade

- Rupture
 - Massive hemorrhage → Hypovolemic Shock
 - Death

Interventions

- BP Control
 - IV B-blocker (esmolol)
 - Calcium channel blockers
 - Ace inhibitors

- Pain control

Interventions (cont.)

- Surgery
 - Delayed as long as possible for false lumen to clot
 - Women have poorer surgical outcomes than men

- Endovascular repair

RN Interventions

- Rx in ICU
 - Semi-fowler's
 - ↓ stimuli
 - ↓ BP
 - IV antihypertensives
 - Pain control/sedation
 - Neuro assessments
 - Constant cardiac monitoring

Home/discharge

- Long term BP management
- Regular follow-up CT/MRI
- EMS if symptoms occur

Peripheral Artery Disease (PAD)

- Cause - obstruction of the peripheral arteries and a lack of collateral circulation
- Risk factors
 - Smoking/tobacco
 - ↑ lipids
 - ↑ BP
 - Diabetes

Symptoms of PAD

- Intermittent claudication
 - Muscle ache/pain with activity
- Location related symptoms
 - Aortoiliac – buttocks and thighs pain
 - Femoral/popliteal – calf pain
 - Internal iliac – sexual dysfunction (men)

Clinical Manifestations

- Paresthesia
- Neuropathy
- Skin
 - Thin, shiny, taut
 - Hair loss
 - Leg \uparrow - pallor, leg \downarrow - redness of foot

Clinical Manifestations (cont.)

- Progression of disease
 - Rest pain
 - Improved Pain relief with dangling
- Critical ischemia
 - Chronic rest pain, ulcerations, gangrene
 - Amputation

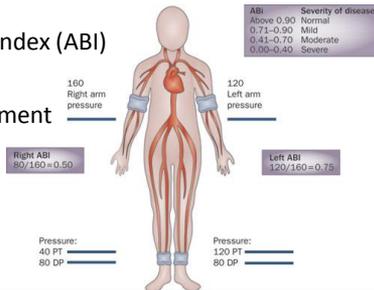
Diagnostics

- Doppler ultrasound

- Ankle-brachial index (ABI)

- Pulse-ox assessment

- Angiography



Treatment goals

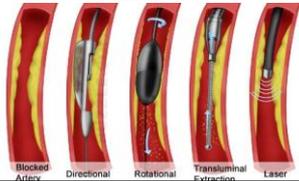
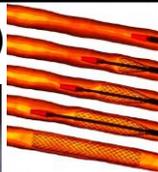
- ↑ tissue perfusion
- Relief of pain
- ↑ exercise tolerance
- Intact healthy skin

Treatments

- Drug therapy
 - Antiplatelets
 - ACE inhibitors
 - Statins
 - Pletal – first line for intermittent claudication
 - Trental – second line for intermittent claudication
- Exercise therapy

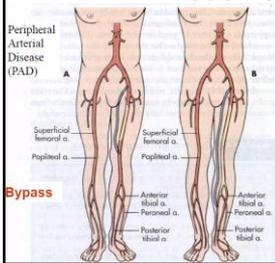
Treatments (cont.)

- Nutrition
- Angiography
 - Stents
 - Atherectomy
 - Cryoplasty

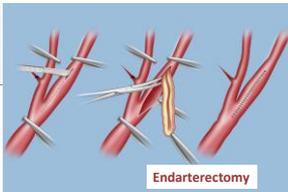


Treatments (cont.)

- Surgical bypass
- Endarterectomy
- Amputation



Bypass



Nursing Interventions

- Acute care post-op
 - Post Angiography/Surgery assessments
 - 6 "P"
 - ABI measurements
 - Hemorrhage
 - Hematoma
 - Compartment syndrome
 - Thrombosis
 - Repositioning/ambulation
 - Compression stockings

Home care teaching

- No Nicotine
- Diet
- ↑ physical activity
- Circulation assessment
- Foot care



Acute arterial ischemia

- Sudden interruption of blood flow
 - Thrombosis, embolism
 - May progress to tissue death within hours
- Assessment
 - Sudden on-set
 - 6 "P" in extremities
 - MI, Stroke, PE, etc

Acute arterial ischemia (cont.)

- Goal
 - Restore tissue perfusion
- Interventions
 - Anticoagulant
 - Thromboectomy
 - Catheter-directed thrombolytic
 - Amputation if unable to restore perfusion in limbs
 - Long term oral anticoagulants after event

Thromboangiitis Obliterans (Buerger's Disease)

- Cause
 - Inflammation of the small to medium arteries in the upper and lower extremities
 - Inflammation → ↑thrombosis and fibrosis of arteries
- Symptoms
 - Intermittent claudication → rest pain → ulceration
 - Cold sensitive, thrombosis, color/temp changes, paresthesia



Thromboangiitis Obliterans (Buerger's Disease) cont.

- Risks
 - Male ↓ 40 y/o
 - HX of smoking
- Treatment
 - Stop tobacco or loss limb
 - Sympathectomy
 - Spinal cord stimulator
 - Amputation



Raynaud's Phenomenon

- Cause
 - Vasospasms of small arteries of fingers and toes
 - Unknown why, associated with autoimmune disease
- Symptoms
 - Color changes pallor → cyanotic → red
 - Last minutes to hours
 - Change in skin (thicken), change in nails (brittle),
 - Small holes



Patient Teaching

- Warm cloths, gloves, avoid temp extremes
- Soak hands in warm water
- Stop use of vasoconstrictive agents
- Relaxation techniques
- calcium channel blockers in extreme cases
- Follow-ups

Venous Thrombosis

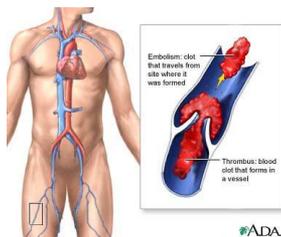
- From DVT to PE
- Cause
 - Venous stasis
 - Damage of the endothelium
 - Direct (lv, trauma, burn)
 - Indirect (chemo, DM)
 - ↑ coagulability
 - Smoking, estrogen, corticosteroids

Pathophysiology

- Platelet aggregation and fibrin → trap RBCs → attracted WBCs → attracted more platelets → thrombosis → grows larger and forms "Tail"

- Breaks off at tail

- Lysis in 5 to 7 days



Deep Vein Thrombosis (DVT)

- Lower extremity
- Symptoms
 - One or both lower extremities
 - Pain
 - Color change = red, purple
 - Edema
 - Warm
 - Temp (100.4)
 - Homan's very unreliable



Prevention

- In bed exercises
 - Flex and extend feet, legs and hips every 2 to 4 hours
- Walking
 - 4 to 6 times a day
- Compression stockings
- SCDs

Prevention (cont.)

- Drugs
 - Warfarin – vit k antagonist
 - Heparin – indirect thrombin inhibitor
- Dx
 - ultrasound

Treatment

- Prevention of growth with anticoagulants
- Lysis in 5 to 7 days
- Heparin bridge to Warfarin
 - INR \geq 2.0 for 24 hours
- Thrombolytics
- Surgical placement of filter in vena cava



http://www.youtube.com/watch?v=qiaDA_FRA48

Superficial Vein Thrombosis (SVT)

- Is a benign disorder
- Symptoms
 - Firm, palpable, cordlike vein, with mild temp
 - Rare infections
- Cause
 - Vein trauma – extended IV placement, caustic IV solutions
 - Recent sclerotherapy

Treatment for SVT

- Remove IV
- Warm moist heat
- NSAIDs
- Varicose veins
 - Compression stockings
 - walking

Nursing Interventions Acute Care

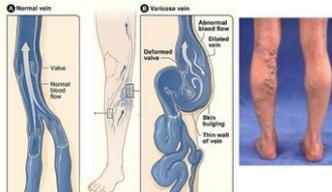
- Goals
 - Pain relief
 - Decrease edema
 - No skin ulcerations
 - No bleeding
 - No PE

Nursing Interventions Home Care

- Goal – Risk reduction
 - Compression stockings
 - No nicotine
 - No constrictive clothing
 - Anticoagulation medications
 - Labs, follow-up appointments, diet, etc.
 - ↓ bleeding risks
 - S/S of PE
 - ↑ activity – walking, swimming
 - ↓ weight

Varicose veins

- Patho
 - Veins become dilated and tortuous due to increase venous pressure



- Risk factors
 - Female
 - Age
 - Obesity
 - Pregnancy
 - Prolonged standing/sitting

Varicose veins (cont.)

- Symptoms
 - SVT
 - Cosmetic
 - Feelings of heaviness, aching, itching, edema, cramping
- Rx
 - Compression stockings,
 - Rest with elevation
 - Walking/changing positions/ weight loss

<http://www.youtube.com/watch?v=ski6ROh5sD4>

Chronic Venous Insufficiency (CVI)

- Cause
 - Valvular destruction
 - Leads to retrograde blood flow
- Symptoms
 - Edema, ↑ pigmentation, varicosities, ulcerations, leathery skin, itching,

Venous Ulcers

- Acute Care
 - Compression stockings
 - Compression bandages
 - Moist environment
 - Prevent/treat infection
 - Nutrition
 - Skin graft

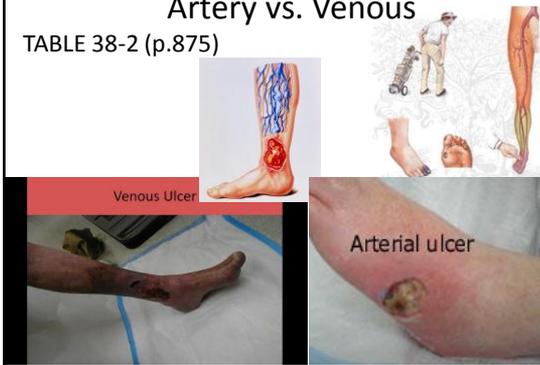
http://www.youtube.com/watch?v=esO_29qGZaU

Home Care

- Avoid trauma
- Proper skin care
 - Daily moisture
- Compression stockings
- No prolonged standing/sitting
- Elevate lower extremity
- Walking once ulcer is healed

Artery vs. Venous

TABLE 38-2 (p.875)













References:

<http://www.youtube.com/watch?v=gaCUNjiwzaU&list=UUjev7J6Aoy8SWTe2DbEo8uQ>
<http://www.youtube.com/watch?v=Bnoo5insrUQ>
<http://www.youtube.com/watch?v=l4xjWlbWyg>
<http://www.youtube.com/watch?v=0PEhvACEROI>
<http://stanfordmedicine25.stanford.edu/the25/ankle.html>
<http://www.ccjm.org/content/79/9/651.full.pdf>
<http://www.nursesfornurses.com.au/admin/uploads/5DifferencesBetweenVenousAndArterialLegUlcers1.pdf>
